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To: Edward A. Boling Energy Task Force/CEQ/EOP@EOP

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Subject: Comments to Task Force

Mr. Chairman Connaughton:
Attached are comments of Policy Solutions Ltd., an economic and environmental consulting firm based in Chicago, Illinois, relating to the fragmentation of the gasoline market by a complex group of environmental regulations. Our argument is that this fragmentation is negative for BOTH the environment and economy. We present a position for a win-win solution for the economy and environment through rationalization of the gasoline regulations and the re-establishment of a national market for fuels.
Henry L. Henderson, Policy Solutions Ltd.
[Hard copy of the comments is being mailed for your records.]

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Comments Regarding Regulation of Gasoline:
Economic and Environmental Perspectives From the MidWest

October 30, 2001

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COMMENTS

We appreciate the opportunity to submit the following Comments to the Federal Energy Streamlining Task Force established by President George W. Bush, and chaired by the Chairman of the Council of Environmental Quality, regarding the environmental and economic impacts of current gasoline policy in the United States of America. Policy Solutions Ltd. is a Chicago-based economic and environmental consulting firm concerned with the impact of complex regulations on markets, infrastructure and environmental quality. Our comments focus on the concrete experience and analysis of the impacts of current gasoline regulations and policy on the greater Chicago region.

Introduction

Through these Comments we wish to make one key point as you consider energy markets in the United States today and their regulation. There is no such thing as a "gasoline market" in the United States today. Thanks largely to well-intentioned environmental rule-making over the years, America now has a gasoline distribution scheme that unnecessarily produces more than 20 different varieties of gasoline, each controlled by a classic regional oligopoly or monopoly. It is no wonder, as we will explain below, that these industrial structures have caused sky-high gas prices and volatile price fluctuations in their various regions across the country.

Most Americans know that a refiner takes crude product, manipulates it into consumer products, and delivers it to the pump. That is the easy part. Today, because of regulations, the refiner must decide what "flavor" of gasoline to make, when to make it, and where to send it. Pipelines can carry different recipes of gasoline, but if one flavor is already in the line, another flavor cannot be delivered until the first is "pushed out." Refiners have limited capacity and must decide when to shut down for maintenance. Now throw in the weather and unexpected changes in demand. We think you can begin to see the complexities associated with distributing gasoline in our current system.

So, making the gasoline product is the relatively easy part of the process. Knowing how to manage distribution channels under all kinds of conditions is the hard part of the business. Running a gasoline company in America today is as complicated as running a major airline: both industries face critical capacity constraints, must bend to the infinite and delicate whims of the public they serve, and are subject to disruptive external forces like the weather and other acts of God.

Our main point here is that current regulations have made a difficult business more complicated. The result for consumers is higher average prices and greater volatility in these prices, especially when external factors like weather are influencing a region.

America does not need 20 different gasoline formulas to protect its environment. If the Congress along with the Environmental Protection Agency and the Department of Energy could decide on a simplified handful of gasoline formulas that optimize tailpipe pollution control, gasoline would be a lot cheaper in this country very quickly. By minimizing the number of different types of gasoline, the government could--in one stroke--make gasoline a commodity again in this country instead of the local delicacy it has become.

Chicago is the center of the commodities markets. One of the commodities traded there is corn. Corn meant for the dinner table is pretty much the same all over America and is completely subject to traditional market forces. If grocery stores in Colorado run short of corn, food distributors are free to legally move excess corn from Ohio to Colorado grocery shelves. However, if the Department of Energy ran corn distribution, it would be illegal for Ohio corn to be sold to Colorado grocery shoppers. Colorado corn lovers would only be allowed to buy corn that is specially produced for them, no matter how adequate Ohio corn might be. Corn would not be corn under such a system.

But, as we explain below, we do "tag" energy in this country. There is "Chicago" gasoline, "Houston" gasoline, "St. Louis" gasoline and so forth. Gasoline is not treated as a commodity under the system of rules currently used in America. This fact is important when trying to understand the so-called "market" for gasoline that delivers fuel to our pumps.

Gasoline was once a commodity in this country. At that time something more closely resembling a competitive market dictated its use and distribution. Perhaps as we look to the future of energy regulation, it would be wise to consider more liberal, past forms of regulation. With gasoline especially, we might well consider going back to the future.

Some will argue that we are proposing to roll-back environmental reforms that have been made over the last thirty years and that have improved air quality in many regions of the country. This is not the case. Rather, we argue for the reconfiguring of the current system of regulation to simultaneously produce a cleaner environment *and* create a stable market with cheaper fuels. What follows is our perspective on the issues as translated through the lens on our Midwestern United States perspective.

What Marketplace for Gasoline?

The Clean Air Act mandates that National Ambient Air Quality Standards (NAAQS) be set for several pollutants in order to improve public health and safety. The Act attempts to promote compliance with these standards by setting geographical boundaries for areas deemed "non-attainment" regions. Distinct regulatory arrangements are imposed upon these non-attainment regions, and as a result, the U.S. is broken up into discrete geographical regulatory zones to manage air quality.

Part of the NAAQS process provides a standard for ground-level ozone. The greater Chicago region, along with nine other areas, is designated a "severe non-

attainment" region for ozone. In order to bring the Chicago area into compliance, the Clean Air Act addresses both stationary and mobile sources of ozone-forming pollutants. The regulation of stationary sources includes enhanced emissions controls for new businesses within the non-attainment area. Mobile source regulations attempt to reduce tailpipe emissions. Some of these apply nationally, such as engine performance levels. Other regulations vary regionally, such as the control of fuels.

The reformulated gasoline (RFG) program is applied only is non-attainment areas and is restricted from national use. It is required only in severe to extreme non-attainment areas, and may be sold only in these areas and in other (less severe) non-attainment areas approved by the USEPA. The gasoline market is further fragmented by oxygenate requirements. This distinct manipulation of fuel recipes involves the addition of oxygenates, such as ethanol or MTBE aimed at reducing violations of carbon monoxide NAAQS. These can be added to both RFG and conventional gasoline. In addition to federal requirements that fragment the national gasoline market, many states have authorized their own clean-fuels programs, which differ from federally mandated RFG. As a result, the U.S. is divided into discrete, specialized niche markets where boutique fuels are sold. For instance, St. Louis RFG cannot be sold in Chicago, Chicago gasoline cannot be sold in Peoria, and Peoria gasoline cannot be sold in Detroit.

This regulatory framework has replaced a very different, previously existing national market for gasoline. The division of the gasoline market has had severe effects on the generation and distribution of gasoline. These artificial restraints on the previously free market have in part caused the disruption of supply and price predictability, causing unexpected price spikes in the Midwest.

The availability of reasonably priced, clean, reliable gasoline is best guaranteed by the establishment and nurturing of a free market in gasoline and its delivery infrastructure. In order to create and operate a competitive market, the following fundamental conditions must be in place: gasoline product homogeneity, the existence of

large numbers of buyers and sellers, freedom of entry and exit into and from the market, absence of artificial restraints on the buyers and sellers, and knowledge about prices and profits.

In Chicago today, we do not have a market for gasoline that resembles this free market structure. For a competitive market to exist in the Chicago region, gasoline must be treated as a commodity. For gasoline to be treated as a commodity would mean that any unit of gasoline within the region or country at large is a perfect substitute for any other unit. However, because of the numerous gasoline formulas required in different regions of the U.S., gasoline is not perfectly substitutable from one region to the next. There are over 20 recipes for gasoline to suit different areas of the country, and many regions are prohibited from using another region's formulated gasoline.

In Chicago, the recipe for blending gasoline, ethanol, and other additives is unique. This special blend presents a problem for the operation of a competitive market, because as demand rises for gasoline in Chicago, refineries can only supply this unique formula in order to satisfy the demand. Gasoline blended for use in other areas of the state, other states, or even for other non-attainment areas may not be used in Chicago to meet rising demand. Therefore, the gasoline market in the region is better understood as being the result of boutique transactions between buyers and sellers rather than the operation of a competitive marketplace.

Problems associated with the fragmentation of the gasoline marketplace are further compounded by the fact that different blends of gasoline are required for winter and for summer consumption in Chicago. Suppliers not only have to make forecasts about how much fuel to produce to meet market demands but they must further decide when to make critical switch-over decisions between when to stop making one seasonal blend and when to begin making another.

The complicated refining and distribution processes become even more difficult when the market for a certain blend of gasoline is highly restrictive. In a climate of seasonal blend variations and a patchwork of regional requirements, a refiner must decide what type of gasoline to produce, when to make it, and where to send it. This process seems simple, but different factors and changing conditions severely complicate the gasoline distribution procedure. For example, pipelines and shipping can carry different recipes of gasoline, but if one type of gasoline is already in the pipeline, another type cannot be delivered until the first is "pushed out." Refiners also have limited capacity and must decide when to shut down for maintenance. Weather and unexpected changes in demand must also be taken into consideration. All of these factors create time lags between a rise in demand for gasoline and the ability for a refinery to supply the needed gasoline; hence, the price of the gasoline quickly rises until the refinery can surpass these obstacles and deliver the gasoline.

In addition to the complications brought about by regional, "boutique" blends of gasoline, it is not clear whether there are enough sellers in the Chicago market to produce the conditions necessary for disciplinary price competition. There are three major suppliers in the market as measured by market share and a handful of other minor suppliers. Recent advances in market economics have indicated that competitive results can be produced in the market with fewer firms that often suggested by textbook models; as few as three firms in a market may be sufficient to generate the forces required for a competitive result. But, the addition of a fourth or fifth firm into the market almost always insures that competitive prices will prevail.

Unfortunately, the capital costs associated with rapidly entering the narrow Chicago gasoline market makes it difficult to induce refineries to sell the required cleaner gasoline in Chicago. Competitors may lack the correct infrastructure to produce the Chicago gasoline blend, the additional capacity to start making Chicago blends, or access to ethanol sources or other additives. If they do succeed in blending Chicago gasoline, they must find access to transportation to bring it to the region. And, under the best of

conditions, there will always be a temporal lag in bringing additional capacity to the market.

Clearly, these barriers to entry will most likely not be overcome until the market is broadened and more consumers may be served by the same blend of cleaner-burning gasoline. The cost of entry into the market is particularly high in Chicago and involves securing appropriate refinery and pipeline infrastructure to deliver Chicago-blend gasoline.

While the foregoing market constraints affect all non-attainment regions, the realities of distance and gasoline production and delivery infrastructure exacerbate these affects on the greater Chicago market. Unlike many other large metropolitan areas, additional gasoline supply for Chicago must travel long distances through pipelines before it reaches the final consumer. Most often, marginal supply must come from the Gulf Coast region. This implies that there may be long time lags between a refinery's decisions to produce and send gasoline to the Chicago market and when that gasoline actually comes into play in the market. This delay affects average price variations, or price volatility, in the region. At least three major factors cause the delay in response by the market. First, refiners in the Gulf must decide to switch over to making Chicago gasoline, they then must procure space on a pipeline, and finally, the product must physically be pushed from south to north across the nation. Optimistically, this process can be accomplished in about three weeks. As this marginal flow wanes and waxes, supply in Chicago will decrease and increase. This contributes to the volatility seen in Chicago gasoline prices.

Refineries producing gasoline for much of the base load of the Chicago market are located within the region. However, refineries for marginal or emergency demands for product are located far from the region (for example Ontario and Texas). This greatly constrains the economies of the Chicago gasoline market. A change in market fundamentals such as an unexpected change in consumer demand or a disruption of local

supply will have larger short-term effects in Chicago than in other regions of the country. The net result is that the requirement to burn only Chicago blend fuel in the region combined with the time lags produced by Chicago's geographical reality lead to higher gasoline price volatility in the Chicago region.

Gasoline Price Effects in the Region

Fragmentation of the gasoline market that isolates Chicago from a broad competitive market contributes to the price differential causing prices for the Chicago-blend fuel to exceed those for conventional fuel sold in the surrounding regions. The major general time trend is a fall in the real price of gasoline in the region with the exception of late 1970s - early 1980s OPEC market manipulations, the run-up in prices caused by the Gulf War in 1990 - 1991, and the two recent price spike of 2000 and 2001. After the Clean Air Act regulations were promulgated in 1996, the general pattern of nominal and real prices continues to fall. Prices only begin to rise when national increases in demand (due to the prosperity of the late 1990s) combine with refineries hitting capacity constraints in the late 1990s.

As discussed earlier, because marginal or emergency sources of product are located far from the region (for example Ontario and Texas), a change in market fundamentals such as an unexpected change in consumer demand or a disruption of local supply will have larger short-term effects in Chicago than in other regions of the country, which destabilizes price predictability. These factors all contribute to the gasoline price spikes witnessed in the Spring of the years 2000 and 2001.

Gasoline and the Environment

The regulatory fragmentation of the gasoline market outlined above fails to maximize clean air benefits that could be achieved by a national market in clean fuels. In fact, air pollution in non-attainment areas is most likely exacerbated by the current

regulatory structure. The RFG program and state-sponsored fuel programs only regulate where fuel is sold. They do not regulate where fuel is used. Accordingly it is not illegal to purchase conventional, dirtier fuels in an unregulated part of the country and burn it within a non-attainment area. A vehicle from central Indiana fueled with conventional gasoline can drive in the Chicago non-attainment area, emitting a high level of ozone precursors, without ever filling up with cleaner burning gasoline. This is a common scenario, with vehicles passing through the Chicago transportation hub in the thousands, fueled with conventional gasoline. The regulatory scheme does not account for the mobile nature of vehicles, and this severely undercuts the ability of non-attainment areas to ever meet clean air standards.

The current RFG program also provides incentives for some drivers to purchase cheaper conventional fuel and avoid the additional costs of cleaner burning reformulated gasoline. This increases the number of vehicles driven in non-attainment areas with dirtier fuels. Consumers on the fringes of the non-attainment area can easily choose to buy less expensive, dirtier gasoline sold outside of the region, rather than paying for more expensive, cleaner gasoline. This "leakage" of conventional gasoline into the non-attainment area occurs because two different blends of gasoline, one dirty and one clean, are sold in the same economic region. The price difference simply aggravates the problem, providing an obvious incentive for drivers to buy conventional gasoline. Accordingly, the serious economic constraints and costs that come from the fragmentation of the gasoline market are not offset by environmental benefits to either the greater Chicago non-attainment region or the nation as a whole.

Policy Ramifications

An assortment of voices have proposed replacing the current complex system of multiple boutique fuels with a simple, national standard for clean fuels to be available in a national market-place. This would effect a radical change in the way that gasoline is made and distributed. From the economic perspective, this is partially a back-to-the-

future strategy that would make gasoline more like the commodity it was before the 1980s. From an environmental perspective it is also an embrace-the-future strategy in that it recognizes the need to preserve and improve upon air quality improvements made over the last thirty years. The policy promises to have positive effects for the economy and the environment.

Different proposals have been made regarding the number of different national blends, varying from as low as one blend to at most a few blends of nationally available gasoline. In order to maintain or improve national air quality standards, the fuels used must be chosen from those that have proven to produce effective and efficient cutbacks of ozone precursors. That is, the blends that are proposed would be among the more expensive that are currently available. Advocates of a single national gasoline blend argue that the costs of these higher-priced-to-produce blends will be more than offset by the national and regional competition generated by a flourishing national market and by the returns to scale associated with making fewer blends of gasoline product.

The availability of a national fuel would lower average prices as Chicago was integrated into a national system on one fuel or a few fuels. Chicago fuel prices would be subject to less volatility and variability under this change in regime. The market would react more quickly to exogenous changes in demand and supply factors. And the improvements in regional air quality would be more efficiently and fully locked-in, with the "leakage" phenomenon discussed above avoided.

But it is also clear to us that the impacts of any new policy may be differentially felt around the country. Chicago may have a different outcome in terms of economics and the environmental than, say, St. Louis. Both in turn may face a very different reality than, say, rural Montana. So the political economy of a single fuel, national gasoline policy includes the reality that not all the nation will equally benefit, and that some parts will pay marginally more for the greater stability and environmental improvements of a national clean fuel market.

We have also considered the alternative approach of developing sub-national regional clean-gasoline requirements between states that share similar economic interests in fuel blends and face similar environmental challenges. One possibility would be for a group of Midwestern States, or possibly the Midwestern States and the Gulf Coast States to agree to adopt a single, environmentally friendly fuel for use in a defined sub-region of the country. From an economic perspective this would contribute to a win-win policy outcome - gasoline would become more flexible and fungible across the region and at the same time environmental standards would continue to be met and extended to a wider new region.

However, there are legal impediments to such an approach. In API v. EPA, 198 F.3d 275 (D.C. Circuit, 2000), the United States Court of Appeals for the District of Columbia recently ruled that the federal Clean Air Act prohibits the extension of RFG requirements beyond classified extreme, severe, serious, moderate and marginal non-attainment regions. EPA had agreed to allow the State of Missouri to extend RFG requirements into areas of the state that were not so classified. This approval was challenged on the grounds that the Clean Air Act explicitly and carefully limits the eligible areas where RFG can be required. The Court held that the Act strictly restricts the ability of states to request and the EPA to approve reformulated gasoline restrictions to limited non-attainment areas. According to this ruling, states may not individually or collectively overcome the fragmentation of the gasoline market-place by creating wide markets for RFG. To do so, the Clean Air Act must be amended.

Minnesota has adopted a state-wide requirement for the use of ethanol as an oxygenate in fuel sold within the state. While this may seem to counter the holding of the D.C. Circuit in API v. EPA, it should be noted that the requirement does not involve reformulated gasoline, which is the major source of regulatory fragmentation of the gasoline market-place, and is the focus of the *API* ruling. Further, the Minnesota has never asked the EPA to approve the state-wide ethanol requirement, and the requirement

has not been challenged administratively or judicially. Even if it is fully within the power of states to establish state-wide oxygenate requirements, this does not obviate the need to change the federal Clean Air Act regarding reformulated gasoline.

Conclusion

We greatly appreciate the opportunity to submit these Comments for your consideration. We recommend the pursuit of amendment of the Clean Air Act to simplify the gasoline requirements on a national basis to establish a national clean gasoline market where gasoline is again a genuine commodity, competitively sold, and flexibly delivered throughout the country. This is a fundamental requirement if an efficient, stable market in environmentally sound fuel is to be established in the United States.

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